Work Assignment No. 6
MTA Agreement No. 15099-0300

Utica Avenue Transit Improvements Study

Task 1 Deliverable 2: Transportation Intercept Survey

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Version Final

Prepared for:

MTA New York City Transit

Submitted by:

WSP

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1 Executive Summary

As part of the Utica Avenue Transit Improvements Study (Utica Avenue Study), the study team performed a transportation intercept survey of customers who currently travel to, from, within, and around the Utica Avenue corridor. The purpose of the intercept survey—conducted from April through June 2019—was to understand current travel patterns of customers and thereby serve as an input to the subsequent development of travel demand forecasts.

Prior to conducting the intercept survey, the study team prepared a data collection plan—submitted as an interim deliverable to New York City Transit (NYCT) in March 2019—that was informed by coordination with an interagency Working Group. Before the study team initiated fieldwork, NYCT approved the survey questionnaire and Government & Community Relations (GCR) notified the pertinent Community Boards and elected officials that the intercept survey would be conducted.

Fieldwork for the intercept survey was conducted in three phases: Pilot, Round One, and Round Two. The purpose of the Pilot phase was for the study team to test out the data collection procedures. The purpose of the Round One effort was to collect about 40 percent of the target data and compare the outcomes to a set of hypotheses. The purpose of the Round Two effort was to adjust course as needed after Round One and collect the balance of the data. The phased approach to the intercept survey enabled the study team to evaluate interim datasets, adjust fieldwork procedures as necessary, and solicit input from the interagency Working Group throughout the process.

When conducting fieldwork, the study team engaged a total of 8,209 customers and about 75 percent took the time to complete the survey. A series of detailed quality control procedures were conducted on the data, which resulted in a usable total of 5,318 responses, exceeding the goal of 5,000 surveys across five sampling frames.[1] The study team nearly met or exceeded the goal for each of five sampling frames, as follows:

- Bus: 2,262 usable surveys, exceeding the goal of 2,150 surveys;
- Subway: 2,013 usable surveys, exceeding the goal of 1,900 surveys;
- Commuter Van: 98 usable surveys, nearly meeting the goal of 100 surveys;
- Pedestrian: 590 usable surveys, nearly meeting the goal of 600 surveys; and
- Automobile: 355 usable surveys, exceeding the goal of 250 surveys.

Customers in all of the sampling frames were intercepted and asked to participate in a personal interview, guided by a custom surveying interface programmed into a tablet computer. Appendix A includes the collected data, and Appendix B1 presents the distribution of data from the survey respondents in a number of categories, including gender, race/ethnicity, age, language spoken during survey interview, household

[1] Many of the responses that were complete, but not ultimately usable, may have skipped certain questions, such as income or race, or may have had an odd or illogical set of geo-coded locations. This is expected and the reason more than the target number of surveys were collected in the field. Furthermore, additional quality control/quality assurance efforts that took place after the 7/18/19 Transportation Intercept Survey & Ridership Working Group meeting reduced the number of usable surveys from 5,379 to 5,318.

size, number of household automobiles, household income, home/work/school locations, and destination purpose. Appendix B2 includes the Tableau Workbooks used to generate the data summaries.

To complement the fieldwork, the study team was able to generate synthetic survey responses for about half of the fully usable surveys. Synthetic survey records correspond to survey respondents from the morning who indicated that their travel choices would be the same in the evening and survey respondents from the evening who indicated that their travel choices were the same in the morning.

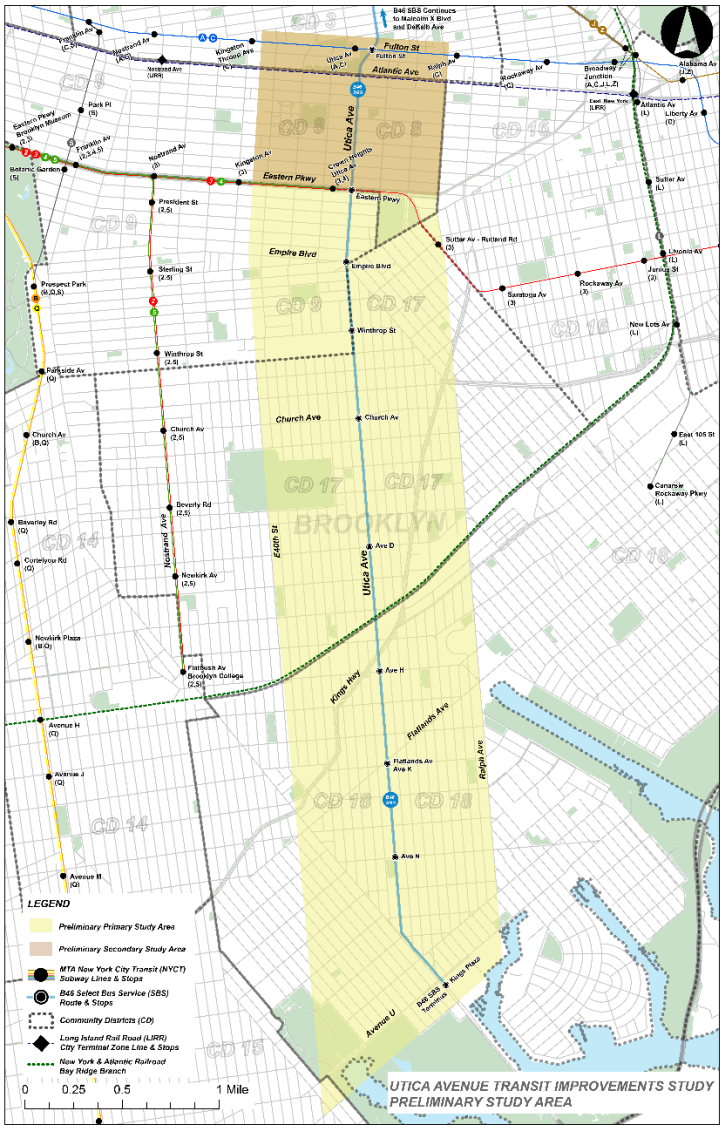
After conducting the fieldwork, the study team expanded the survey data by assigning a weight to each sampled respondent. Appendix C discusses the details of the survey expansion process, the outcomes of which were used to test hypotheses based primarily on the Metropolitan Transportation Authority (MTA) Regional Transit Forecasting Model (RTFM) as well as data provided by NYCT and the New York City Department of Transportation (DOT). Appendices D1 and D2 present the results of the hypothesis comparisons.

The survey outcomes will serve a key role in the project moving forward by enhancing the study team's understanding of relevant travel markets and providing robust data to calibrate the travel demand model. Next steps in the study will directly build upon this work, as the intercept survey data will inform the study team's validation of the ridership forecasting tool, which will use both the MTA RTFM and New York Metropolitan Transportation Council (NYMTC) Best Practice Model (BPM).

2 Introduction

As part of the Utica Avenue Transit Improvements Study (Utica Avenue Study), the study team performed a transportation intercept survey of customers who currently travel to, from, within, and around the Utica Avenue corridor. The purpose of the intercept survey—conducted from April through June 2019—was to understand current travel patterns of customers and to provide descriptions of traveler behavior. The results of the survey will inform the travel demand forecasting effort and the study team's technical approach to define and evaluate transit improvement alternatives to achieve the study goal, specifically to improve the mobility of customers who travel to and from the Study Area (Figure 1) by increasing transit reliability and reducing travel times.

Figure 1. Utica Avenue Transit Improvements Study – Study Area



Source: Utica Avenue Transit Improvements Study

3 Methodology & Data Collection Plan

Prior to conducting the intercept survey, the study team prepared a data collection plan that was informed by input from an interagency Working Group. The following sections summarize the methodology for the intercept survey, which was the subject of an interim deliverable submitted to NYCT in March 2019.

3.1 SAMPLING FRAMES

The goal of the intercept survey was to collect 5,000 complete and usable surveys across the following five sampling frames:

- 2,150 customers on-board buses and at bus stops;
- 100 customers on-board commuter vans and locations where commuter van customers congregate;
- 1,900 customers at subway stations;
- 600 pedestrians; and
- 250 automobile users.

Specific to the first sampling frame, a map of the surveyed bus routes and the approximate ridership and sample size goals by route are shown in Figure 2 and Table 1, respectively.

Table 1. Surveyed Bus Routes and Sample Goals

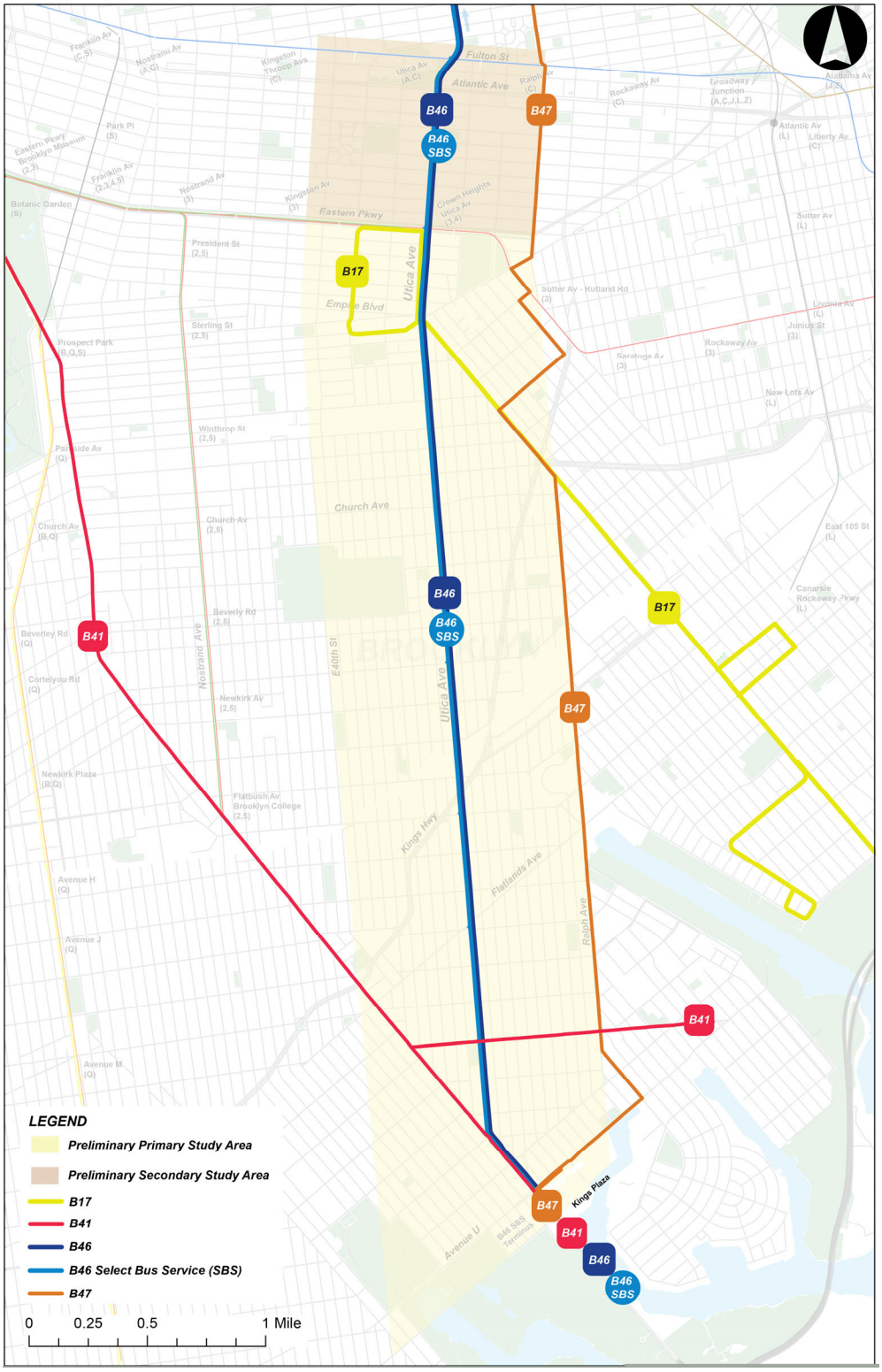
Route	Route Ridership†	Approximate Share of Boardings in the Corridor	Approximate Corridor Boardings	Sample Size Goals for Intercept Survey*
B46	15,200	69 percent	10,500	536
B46 SBS	22,900	75 percent	17,200	956
B41	23,000	18 percent	4,130	91
B7	5,090	25 percent	1,270	33
B17	9,380	45 percent	4,220	66
B47	9,250	53 percent	4,900	309
Total				2,150

† http://web.mta.info/nyct/facts/ridership/ridership_bus.htm, for year 2018; B46 and B46 SBS ridership split 40/60 per May 2018 data provided by NYCT.

* Size based on factors other than share of corridor boardings (i.e., length of run in corridor), hence the inconsistent relationship between the two rightmost columns.

Note: The subject bus routes were modified following the Pilot phase of the survey based on site visits and analysis of origin/destination survey data. Specifically, routes B35 and B8 were included in the Pilot but dropped for Rounds One and Two, and routes B41 and B17 (i.e., the portions of the routes that serve the Utica Avenue corridor) were added for Rounds One and Two.

Figure 2. Map of Surveyed Bus Routes



Source: Utica Avenue Transit Improvements Study

Specific to the second frame, commuter vans operate along the Utica Avenue corridor, generally traveling south from Eastern Parkway to Kings Plaza as well as north, exiting the corridor in the direction of Williamsburg. Commuter van customers were approached at the intersection of Utica Avenue and Eastern Parkway, a popular pickup location for van passengers. Interviewers asked commuter van drivers if they could board and survey customers on the vans at this location. Interviewers also approached passengers waiting at bus stops served by the commuter vans. The Central Brooklyn (Utica Avenue) commuter van services serve about 3,300 customers per day, as shown in Table 2.

Table 2. Estimated Central Brooklyn (Utica Avenue) Commuter Van Ridership

Route	Daily Total	Morning Commute	Midday	Evening Commute
Inbound	1,687	513	621	553
Outbound	1,603	361	492	751
Total	3,290	874	1,113	1,303

Source: NYC DOT

Specific to the third sampling frame, a map of the surveyed subway stations and the approximate daily boardings and sample size goals by station are shown in Figure 3 and Table 3, respectively.

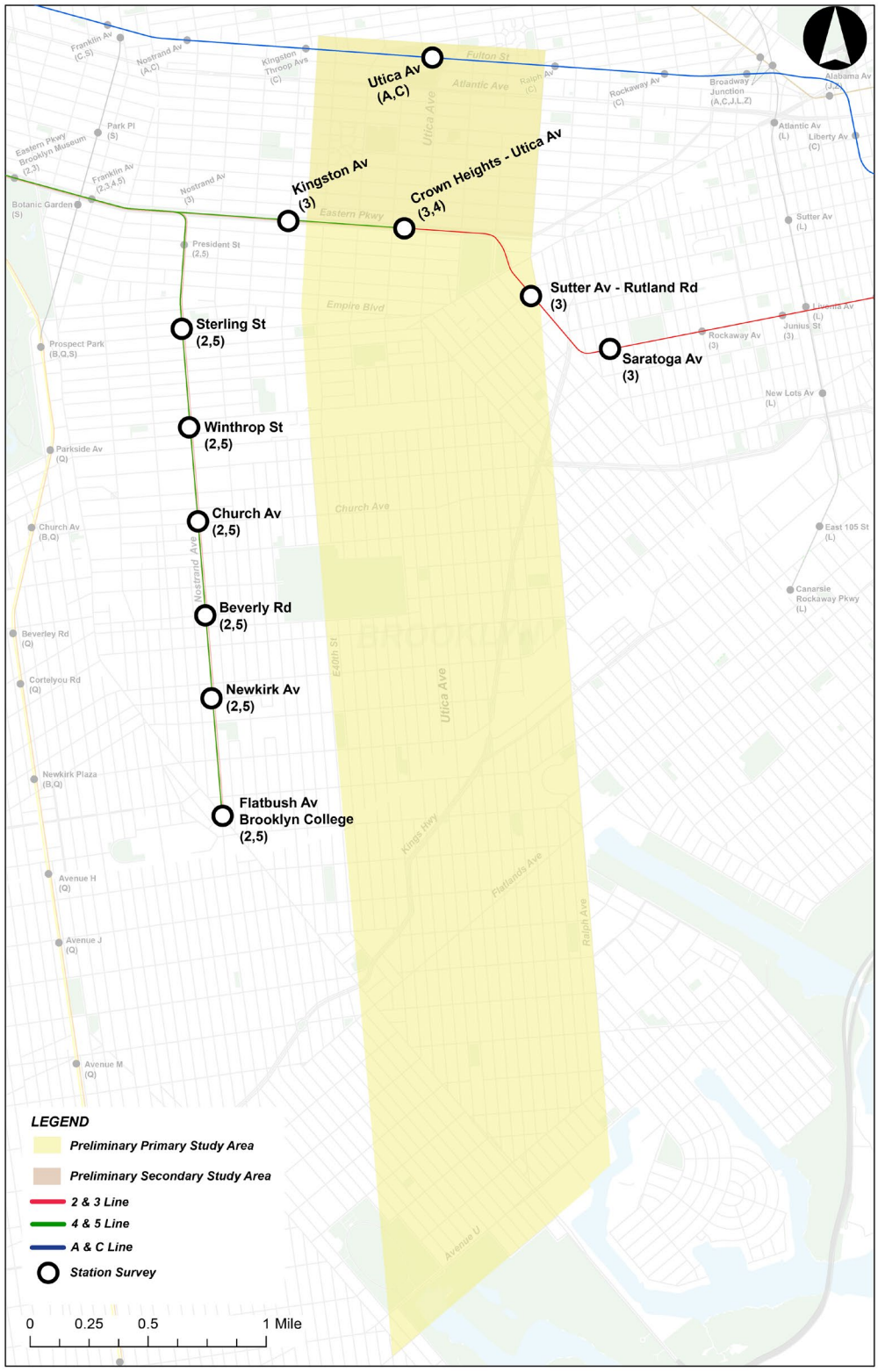
Table 3. Surveyed Subway Stations and Sample Goals

Station	Daily Boardings†	Routes Served	Sample Size Goals for Intercept Survey
Crown Heights - Utica Avenue	28,980	2,3,4	665
Utica Ave	16,408	A,C	380
Flatbush Avenue	20,691	2,5	269
Newkirk Ave/Nostrand Ave	7,600	2,5	99
Beverly Road	4,384	57	57
Church Avenue	9,512	2,5	124
Winthrop Street	7,317	2,5	95
Sterling Street	5,795	2,5	75
Kingston Avenue	4,703	3	61
Sutter Avenue/Rutland Road	3,449	3	45
Saratoga Avenue	5,777	3	117
Total			1,900

Source: http://web.mta.info/nyct/facts/ridership/ridership_sub.htm; Utica Avenue Transit Improvements Study

The study team sampled pedestrians and automobile users along the full stretch of Utica Avenue in the Study Area, with the latter focused on the larger parking lots serving retail stores in the southern portion of the corridor.

Figure 3. Map of Surveyed Subway Stations



Source: Utica Avenue Transit Improvements Study

3.2 INSTRUMENTS

The purpose of the intercept survey was to collect information on the travel patterns of customers using infrastructure and services near and through Utica Avenue. A summary of desired variables is included in Table 4. Some of the variables below were not included in the intercept survey, but are included in the table to note the discussion of the item and give the reason for exclusion.

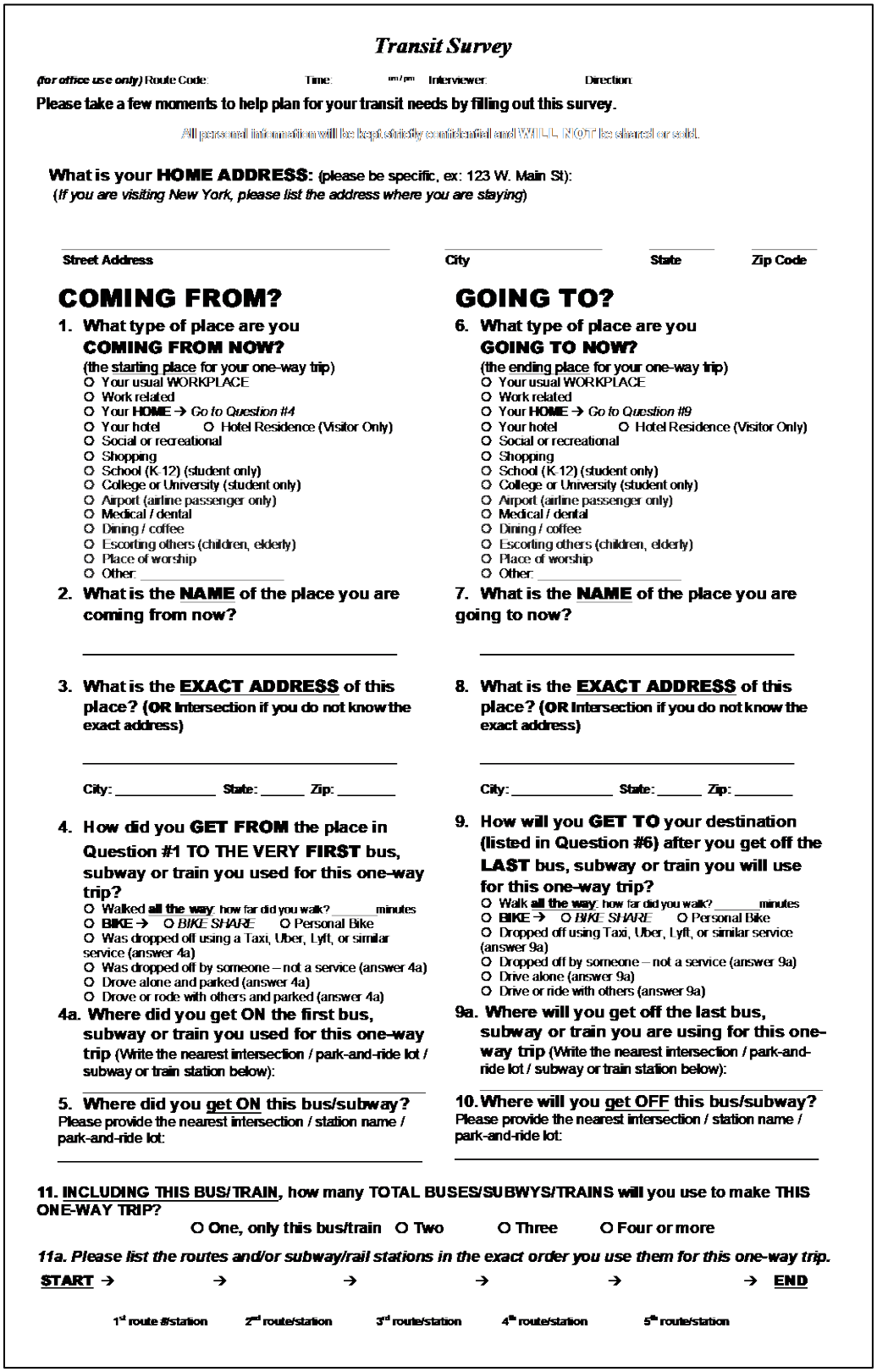
Customers in all of the sampling frames were intercepted and asked to participate in a personal interview, guided by a custom surveying interface programmed into a tablet computer. The tablet interface includes numerous features to help interviewees avoid duplicate effort and to reduce survey error. A paper version of the survey was created for interagency review and NYCT approval and is only deployed in the field if requested by a participant, which is rare. The survey questions used in the bus, commuter van, and subway sampling frames (Figure 4 and Figure 5) were nearly identical to those used in the pedestrian and automobile sampling frames (Figure 6 and Figure 7), but the latter did not ask about transit path details given their respective mode.

Table 4. Variables Included and Considered in the Survey

Measure	Include?	Motivation/Reason for Including or Excluding
Trip Purpose	Yes	Immediate reason for travel (e.g., get coffee)
Tour Purpose	Yes	Strategic reason for travel (e.g., go to work)
Complete travel mode sequence	Yes	Full movement through the system from origin to destination
Time left home	Yes	Tour purpose, context of travel
Time returning home	Yes	Tour purpose, context of travel
Origin	Yes	Context of travel
Destination	Yes	Context of travel
Home location	Yes	Relationship between location anchors and movement
Work location	Yes	Relationship between location anchors and movement
School location	Yes	Relationship between location anchors and movement
Fare Category	Yes	Marginal cost of travel, traveler socio-demographics
Ticket type	Yes	Marginal cost of travel
Access mode to first transit	Yes	Full movement through system
Egress mode from last transit	Yes	Full movement through system
Transit route sequence	Yes	Full movement through system
Transfer location	No	Precise location where transfers between transit routes occur. This is time-consuming to collect and frequently aligns with inferred location.
Household income	Yes	Customer details
Gender	Yes	Customer details
Race/ethnicity	Yes	Customer details
Number of workers in the household	Yes	Customer details
Number of children in the household under age 6	No	Customer details. Asking about children is bothersome to customers and getting the number of adults can be sufficient.
Number of adults in the household (16 and up)	Yes	Customer details
Automobile ownership	Yes	Customer details
Bicycle ownership	No	Customer details. Does not seem to be a primary travel market in the corridor.
Willingness to participate in additional intercept surveys	Yes	Potential follow-ups
Telephone number	Yes	Potential follow-ups
Email address	Yes	Potential follow-ups
Okay to text	Yes	Potential follow-ups
Okay to call	Yes	Potential follow-ups
Okay to email	Yes	Potential follow-ups
New York State Resident	Yes	Potential follow-ups
Non-random flag	Yes	Indicator that participant was not selected randomly
Customer comments	Yes	Opportunity for customers to provide miscellaneous comments

Source: Utica Avenue Transit Improvements Study

Figure 4. Paper Image of Bus, Commuter Van, and Subway Survey Instrument – Page 1



Transit Survey

(for office use only) Route Code: Time: am / pm Interviewer: Direction:

Please take a few moments to help plan for your transit needs by filling out this survey.

All personal information will be kept strictly confidential and WILL NOT be shared or sold.

What is your HOME ADDRESS: (please be specific, ex: 123 W. Main St):
(*If you are visiting New York, please list the address where you are staying*)

Street Address | City | State | Zip Code

COMING FROM?

1. **What type of place are you COMING FROM NOW?**
(the starting place for your one-way trip)
O Your usual WORKPLACE
O Work related
O Your HOME → *Go to Question #4*
O Your hotel O Hotel Residence (Visitor Only)
O Social or recreational
O Shopping
O School (K-12) (student only)
O College or University (student only)
O Airport (airline passenger only)
O Medical / dental
O Dining / coffee
O Escorting others (children, elderly)
O Place of worship
O Other: _____

2. **What is the NAME of the place you are coming from now?**

3. **What is the EXACT ADDRESS of this place? (OR Intersection if you do not know the exact address)**

City: _____ State: _____ Zip: _____

4. **How did you GET FROM the place in Question #1 TO THE VERY FIRST bus, subway or train you used for this one-way trip?**
O Walked **all the way**: how far did you walk? _____ minutes
O BIKE → O *BIKE SHARE* O Personal Bike
O Was dropped off using a Taxi, Uber, Lyft, or similar service (answer 4a)
O Was dropped off by someone – not a service (answer 4a)
O Drove alone and parked (answer 4a)
O Drove or rode with others and parked (answer 4a)

4a. **Where did you get ON the first bus, subway or train you used for this one-way trip** (Write the nearest intersection / park-and-ride lot / subway or train station below):

5. **Where did you get ON this bus/subway?**
Please provide the nearest intersection / station name / park-and-ride lot:

GOING TO?

6. **What type of place are you GOING TO NOW?**
(the ending place for your one-way trip)
O Your usual WORKPLACE
O Work related
O Your HOME → *Go to Question #9*
O Your hotel O Hotel Residence (Visitor Only)
O Social or recreational
O Shopping
O School (K-12) (student only)
O College or University (student only)
O Airport (airline passenger only)
O Medical / dental
O Dining / coffee
O Escorting others (children, elderly)
O Place of worship
O Other: _____

7. **What is the NAME of the place you are going to now?**

8. **What is the EXACT ADDRESS of this place? (OR Intersection if you do not know the exact address)**

City: _____ State: _____ Zip: _____

9. **How will you GET TO your destination (listed in Question #6) after you get off the LAST bus, subway or train you will use for this one-way trip?**
O Walk **all the way**: how far did you walk? _____ minutes
O BIKE → O *BIKE SHARE* O Personal Bike
O Dropped off using Taxi, Uber, Lyft, or similar service (answer 9a)
O Dropped off by someone – not a service (answer 9a)
O Drive alone (answer 9a)
O Drive or ride with others (answer 9a)

9a. **Where will you get off the last bus, subway or train you are using for this one-way trip** (Write the nearest intersection / park-and-ride lot / subway or train station below):

10. **Where will you get OFF this bus/subway?**
Please provide the nearest intersection / station name / park-and-ride lot:

11. INCLUDING THIS BUS/TRAIN, how many TOTAL BUSES/SUBWYS/TRAINS will you use to make THIS ONE-WAY TRIP?
O One, only this bus/train O Two O Three O Four or more

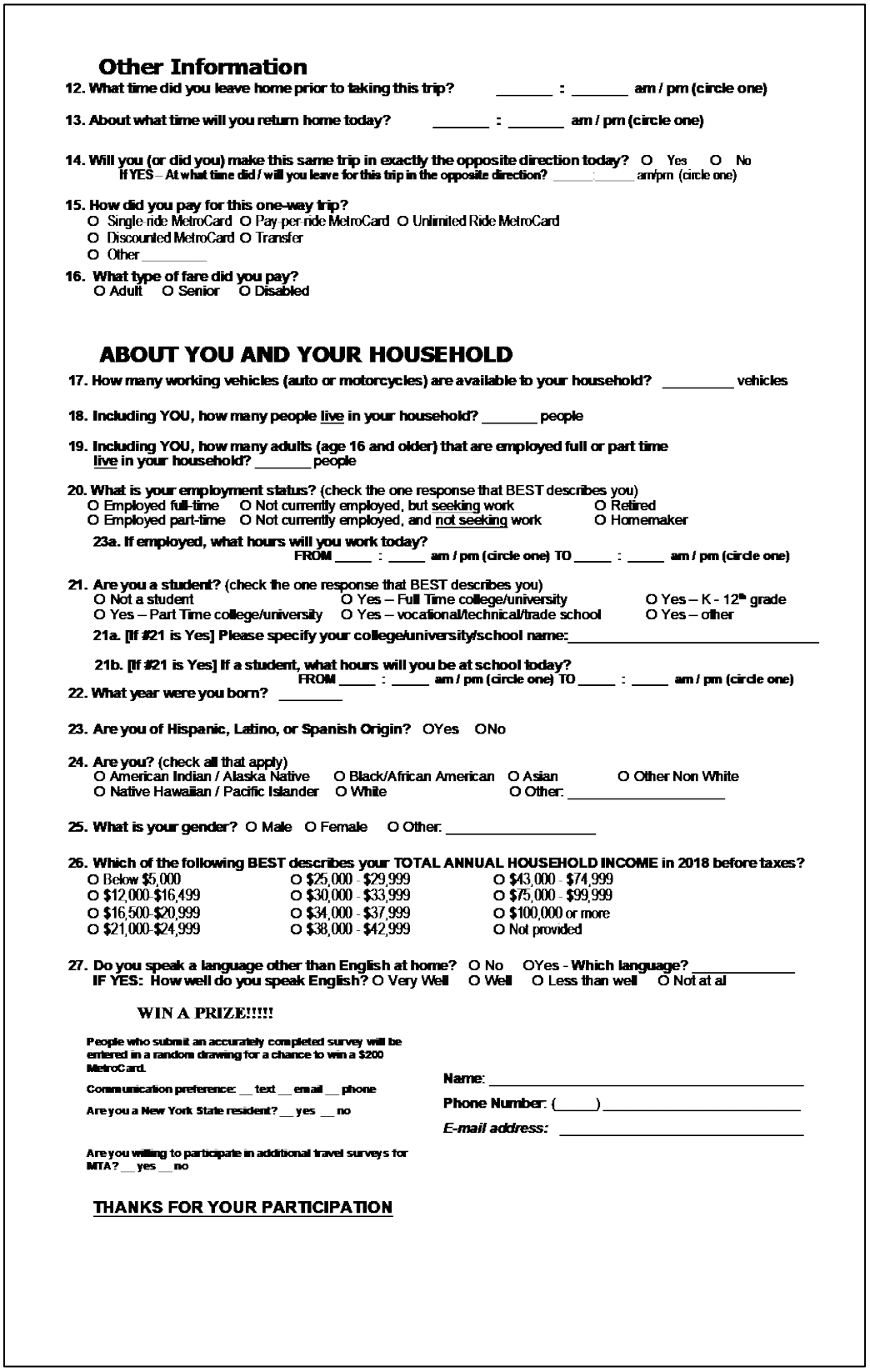
11a. Please list the routes and/or subway/rail stations in the exact order you use them for this one-way trip.

START → → → → → → **END**

1st route #/station 2nd route/station 3rd route/station 4th route/station 5th route/station

Source: Utica Avenue Transit Improvements Study

Figure 5. Paper Image of Bus, Commuter Van, and Subway Survey Instrument – Page 2



Other Information

12. What time did you leave home prior to taking this trip? _____ : _____ **am / pm (circle one)**

13. About what time will you return home today? _____ : _____ **am / pm (circle one)**

14. Will you (or did you) make this same trip in exactly the opposite direction today? O Yes O No
If YES – At what time did / will you leave for this trip in the opposite direction? _____:_____ am/pm (circle one)

15. How did you pay for this one-way trip?
O Single-ride MetroCard O Pay-per-ride MetroCard O Unlimited Ride MetroCard
O Discounted MetroCard O Transfer
O Other _____

16. What type of fare did you pay?
O Adult O Senior O Disabled

ABOUT YOU AND YOUR HOUSEHOLD

17. How many working vehicles (auto or motorcycles) are available to your household? _____ vehicles

18. Including YOU, how many people live in your household? _____ people

19. Including YOU, how many adults (age 16 and older) that are employed full or part time live in your household? _____ people

20. What is your employment status? (check the one response that BEST describes you)
O Employed full-time O Not currently employed, but seeking work O Retired
O Employed part-time O Not currently employed, and not seeking work O Homemaker

23a. If employed, what hours will you work today?
FROM _____ : _____ **am / pm (circle one) TO** _____ : _____ **am / pm (circle one)**

21. Are you a student? (check the one response that BEST describes you)
O Not a student O Yes – Full Time college/university O Yes – K - 12th grade
O Yes – Part Time college/university O Yes – vocational/technical/trade school O Yes – other

21a. [If #21 is Yes] Please specify your college/university/school name:_____

21b. [If #21 is Yes] If a student, what hours will you be at school today?
FROM _____ : _____ **am / pm (circle one) TO** _____ : _____ **am / pm (circle one)**

22. What year were you born? _____

23. Are you of Hispanic, Latino, or Spanish Origin? OYes ONo

24. Are you? (check all that apply)
O American Indian / Alaska Native O Black/African American O Asian O Other Non White
O Native Hawaiian / Pacific Islander O White O Other: _____

25. What is your gender? O Male O Female O Other: _____

26. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2018 before taxes?

O Below $5,000	O $25,000 - $29,999	O $43,000 - $74,999
O $12,000-$16,499	O $30,000 - $33,999	O $75,000 - $99,999
O $16,500-$20,999	O $34,000 - $37,999	O $100,000 or more
O $21,000-$24,999	O $38,000 - $42,999	O Not provided

27. Do you speak a language other than English at home? O No OYes - **Which language?** _____
IF YES: How well do you speak English? O Very Well O Well O Less than well O Not at al

WIN A PRIZE!!!!!

People who submit an accurately completed survey will be entered in a random drawing for a chance to win a $200 MetroCard.

Communication preference: __ text __ email __ phone

Are you a New York State resident? __ yes __ no

Are you willing to participate in additional travel surveys for MTA? __ yes __ no

Name: _____

Phone Number: (_____)_____

E-mail address: _____

THANKS FOR YOUR PARTICIPATION

Source: Utica Avenue Transit Improvements Study

Figure 6. Paper Image of Auto-Pedestrian Survey Instrument – Page 1

UTICA Ave (INTERCEPT TRAVEL SURVEY) ***Auto-Ped Survey***

Location Type: Auto – Location, Auto – Parked, or Pedestrian Interviewer use only

Location Name/Nearest Intersection:_____ **Interviewer Initials:** _____ **Time:** _____

All personal information will be kept strictly confidential and WILL NOT be shared or sold.

What is your HOME ADDRESS: (please be specific, ex: 123 W. Main St):
(*If you are visiting New York, please list the address where you are staying*)

_____ _____ _____ _____
Street Address **City** **State** **Zip Code**

COMING FROM/GOING TO

1. What type of place are you coming from right now?

__(1) Usual workplace __(4) Your hotel __(7) School (student) __(10) Medical/Dental
__(2) Work related __(5) Social/recreation __(8) College (student) __(11) Escorting others
__(3) Home (Go to Q2) __(6) Shopping __(9) Dining/coffee __(12) Hotel (visitor only)
__13) Other_____

1a. What is the name of the place you are coming from right now ?

Name : _____

1b. What is the exact address of this place ? (or intersection)?

Adress : _____ **City:** _____ **State:** _____ **Zip:** _____

2. Approximately what time did you DEPART the location in (Q1)? _____ AM or PM (Circle AM or PM)

3. What the general purpose for coming to this current location? (ASK ONLY IF LOCATION TYPE = AUTO - LOCATION

__(1) Park vehicle __(3) Shop __(5) Drop-off/pick up __(7) Dining
__(2) Work __(4) Gas __(6) Social __(8)Other :_____

4. How did you get to this location?

__(1) Walked all the way: How far did you walk? _____minutes
__(2) Bike : Bike Share or Personal Bike ?
__(3) Dropped off using Taxi, Uber, or similiar service (not public transportation)
__(4) Was dropped off by someone – not a service
__(5) Drove alone
__(6) Drove or rode with others
__(7) Other : _____
__(8) Public Transportation: Which route/subway did you take to get here? _____

5. What type of place are you going to right now? (very next place)

__(1) Usual workplace __(4) Your hotel __(7) School (student) __(10) Medical/Dental
__(2) Work related __(5) Social/recreation __(8) College (student) __(11) Escorting others
__(3) Home (Go to Q6) __(6) Shopping __(9) Dining/coffee __(12) Hotel (visitor only)
__13) Other_____

5a. What is the name of the place you are going to right now? (very next place)

Name : _____

5b. What is the exact address of this place ? (or intersection)?

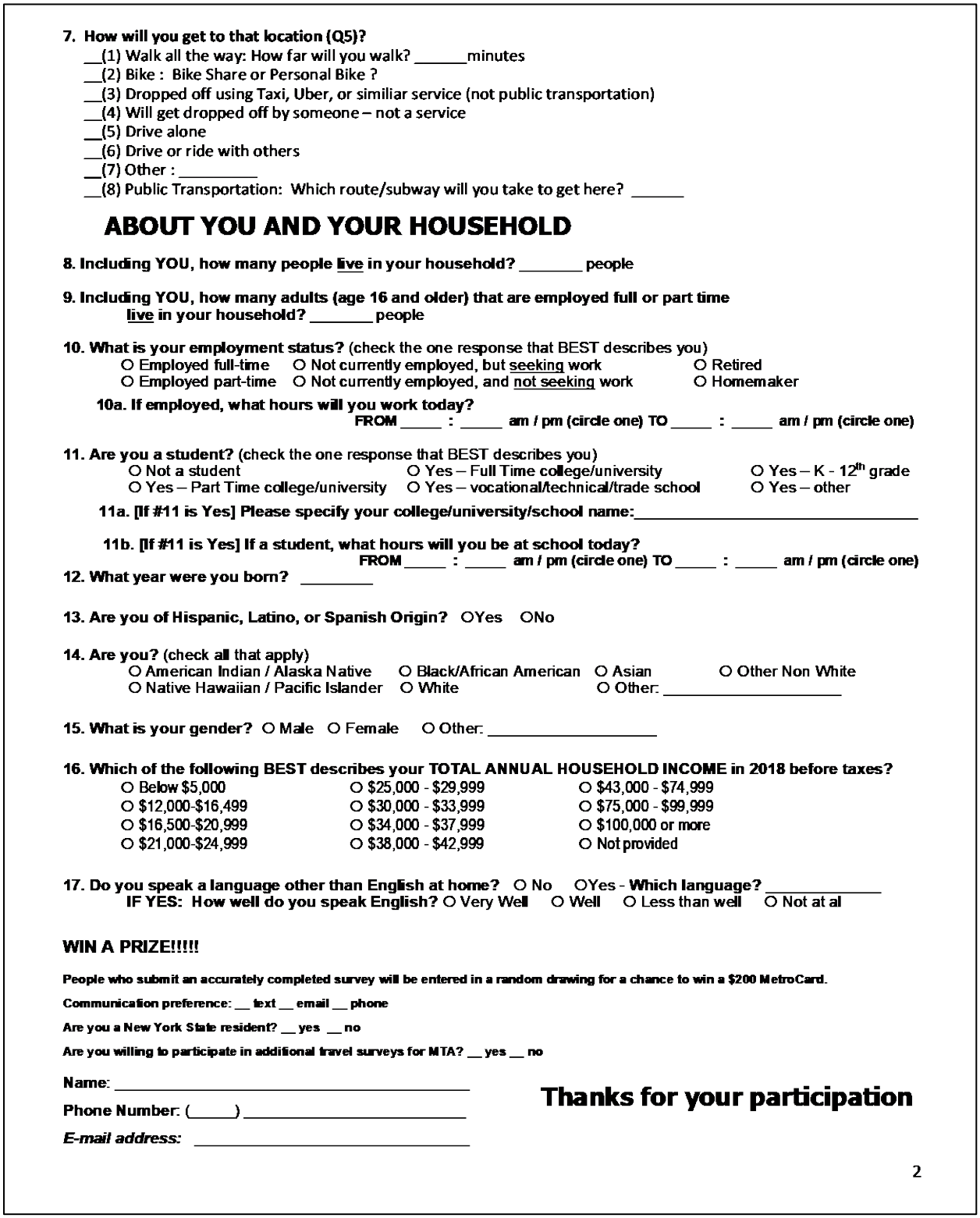
Adress : _____ **City:** _____ **State:** _____ **Zip:** _____

6. Approximately what time will you arrive at this location in (Q5)? _____ AM or PM (Circle AM or PM)

1

Source: Utica Avenue Transit Improvements Study

Figure 7. Paper Image of Auto-Pedestrian Survey Instrument – Page 2



7. How will you get to that location (Q5)?
__(1) Walk all the way: How far will you walk? _____minutes
__(2) Bike : Bike Share or Personal Bike ?
__(3) Dropped off using Taxi, Uber, or similiar service (not public transportation)
__(4) Will get dropped off by someone – not a service
__(5) Drive alone
__(6) Drive or ride with others
__(7) Other : _____
__(8) Public Transportation: Which route/subway will you take to get here? _____

ABOUT YOU AND YOUR HOUSEHOLD

8. Including YOU, how many people live in your household? _____ people

9. Including YOU, how many adults (age 16 and older) that are employed full or part time live in your household? _____ people

10. What is your employment status? (check the one response that BEST describes you)
O Employed full-time O Not currently employed, but seeking work O Retired
O Employed part-time O Not currently employed, and not seeking work O Homemaker

10a. If employed, what hours will you work today?
FROM _____ : _____ **am / pm (circle one) TO** _____ : _____ **am / pm (circle one)**

11. Are you a student? (check the one response that BEST describes you)
O Not a student O Yes – Full Time college/university O Yes – K - 12th grade
O Yes – Part Time college/university O Yes – vocational/technical/trade school O Yes – other

11a. [If #11 is Yes] Please specify your college/university/school name:_____

11b. [If #11 is Yes] If a student, what hours will you be at school today?
FROM _____ : _____ **am / pm (circle one) TO** _____ : _____ **am / pm (circle one)**

12. What year were you born? _____

13. Are you of Hispanic, Latino, or Spanish Origin? OYes ONo

14. Are you? (check all that apply)
O American Indian / Alaska Native O Black/African American O Asian O Other Non White
O Native Hawaiian / Pacific Islander O White O Other: _____

15. What is your gender? O Male O Female O Other: _____

16. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2018 before taxes?

O Below $5,000	O $25,000 - $29,999	O $43,000 - $74,999
O $12,000-$16,499	O $30,000 - $33,999	O $75,000 - $99,999
O $16,500-$20,999	O $34,000 - $37,999	O $100,000 or more
O $21,000-$24,999	O $38,000 - $42,999	O Not provided

17. Do you speak a language other than English at home? O No OYes - **Which language?** _____
IF YES: How well do you speak English? O Very Well O Well O Less than well O Not at al

WIN A PRIZE!!!!!

People who submit an accurately completed survey will be entered in a random drawing for a chance to win a $200 MetroCard.

Communication preference: __ text __ email __ phone

Are you a New York State resident? __ yes __ no

Are you willing to participate in addiftional travel surveys for MTA? __ yes __ no

Name: _____

Phone Number: (_____) _____

E-mail address: _____

Thanks for your participation

2

Source: Utica Avenue Transit Improvements Study

Table 5 summarizes the aggregate item response expectations for a complete set of intercept surveys, as it is unreasonable to expect that every respondent will be able and willing to answer every question. Some questions, such as income, are sensitive and even though intercept surveyors took measures to encourage a response, such as handing the respondent the tablet to tick the answer themselves, some number of customers would refuse. Other customers would not have the time to complete the intercept survey. Importantly, survey responses with select questions missing – such as income – remain useful to myriad analyses and are therefore retained. The table below summarizes the expected non-response goals for the set of responses returned to NYCT as fully usable.

Table 5. Item Non-response Thresholds

Item	Minimum response
Accurately geo-coded origin location	98 percent
Accurately geo-coded destination location	98 percent
Accurately geo-coded home location	98 percent
Accurately geo-coded work location	80 percent
Access mode (for transit)	98 percent
Egress mode (for transit)	98 percent
Accurate time and date	98 percent
Accurate intercept survey frame	98 percent
Race/ethnicity	85 percent
Income	70 percent

Source: Utica Avenue Transit Improvements Study

Note: The study team used proprietary mapping software to ensure reported origin, boarding, alighting, and destination locations are reasonable and consistent with reported transit route sequences to ensure all intercept survey records are logical and logically geocoded. Additionally, survey respondents were shown a tablet image of their complete journey from origin to destination on the tablet computer and were asked to confirm that it was correct. This confirmation dramatically reduces geocoding errors.

3.3 PERSONAL INTERVIEW APPROACH AND PROCEDURES

Details regarding the personal interview approach and procedures are as follows:

- Intercept surveyors would wear vests identifying themselves as surveyors.
- Intercept surveyors would include individuals fluent English, Haitian/Creole, and Spanish. When surveyors encounter participants with whom they are not able to communicate, the tablet computer would go to a screen that asks participants for their phone number in a wide variety of languages. The participant can select this option, provide their phone number, and someone from the study team's call center fluent in their preferred language would contact them within 24 hours of the encounter. If the respondent provides their email, the study team would email an online version of the survey for them to complete that has been translated.
- Personal interviewers would use their tablet computers to randomly select a customer to interview. Mechanically, this works by the intercept surveyor counting the number of people in the sampling area, such as the number boarding a bus or gathered in an area at the subway platform, and giving each a number. The intercept surveyor would then enter the number into a module on the tablet computer and it returns a random number within the specified range (e.g., if four people board the bus, the interviewer would enter four into the tablet, and the tablet would then return a random number between 1 and 4). The intercept surveyor would then engage the randomly-selected passenger. This approach enables the surveyors to quickly select random passengers.

- When conducting an intercept survey of randomly-selected participants, bystanders may wonder why they were not selected for the survey and express an interest in participation.[2] It is often better for the surveyor to appease the bystander rather than to explain the random sampling scheme. As such, the study team would put procedures in place to make sure those working in the field accommodate requests to be surveyed and flag these participants with a non-random field.

- Customers who completed the survey would be offered an opportunity to be entered into a drawing for a nominal prize to thank them for their time. The prize offered would be the choice between an unlimited 30-day MetroCard or a $125 Visa Gift card. The rationale was that the option could further incentivize people who rely on personal automobiles or commuter vans and potentially do not use transit. As discussed in the following section, the intercept survey would be divided into three phases, and participation incentives would be offered in each phase. Three winners would be selected from the Pilot phase of the survey, with 10 winners and 12 winners to be selected during Round One and Round Two, respectively. If the winners were unresponsive to repeated attempts to contact them, another winner would be selected.

[2] Of note, the intercept survey was fundamentally a data collection tool to inform the study team about current travel patterns of customers traveling through the corridor. Opinion questions were not included in the intercept survey, but the study website (https://new.mta.info/system_modernization/utica_avenue) provides a form for interested members of the public to provide feedback about the corridor and the overall study.

4 Field Work Details

4.1 INTERCEPT SURVEY FIELDWORK SCHEDULE

The intercept survey was conducted from April through June 2019, concluding during the week of 6/24/19, which is consistent with the end of the public school year. As shown in Table 6, the fieldwork for the intercept survey was conducted in three phases: Pilot, Round One, and Round Two.[3]

Table 6. Intercept Survey Fieldwork Schedule

Activity	Start	Finish
Pilot Intercept Survey	April 8, 2019	April 10, 2019
Round One Field Work	April 22, 2019	May 15, 2019
Round Two Field Work	May 25, 2019	June 27, 2019

Source: Utica Avenue Transit Improvements Study

The purpose of the Pilot phase was for the study team to get familiar with the nuances of the corridor, to test out the data collection procedures, and to understand how best to collect data from pedestrians, commuter van patrons, and automobile users. In general, the pilot revealed expected outcomes in the subway, bus,[4] and pedestrian frames. For the commuter van sampling frame, the plan to survey customers as they exited the Crown Heights-Utica Avenue subway station and approached commuter vans at the intersection of Eastern Parkway and Utica Avenue was not successful. The team changed approaches following the Pilot phase and subsequently surveyed customers on board the commuter vans, with a sufficient number of drivers allowing this to happen, although most drivers refused access to the study team. During the Pilot phase, the study team also found a lack of automobile users to approach for the survey aside from the parking lots in the southern portion of the corridor, which informed the approach for Round One.

The purpose of the Round One effort was to collect about 40 percent of the data and compare the outcomes to a set of hypotheses (discussed in Section 6). The purpose of the Round Two effort was to adjust course as needed after Round One and collect the balance of the data. In response to the hypothesis comparison exercise, an additional 100 records were allocated to the pedestrian sampling frame (instead of the subway frame) in Round Two compared to the original survey plan. Given the general agreement between the expected and realized outcomes, larger actions were not needed. Resources were shifted to the pedestrian frame because the transit-related frames were large and returning expected outcomes.

As noted previously, a tablet computer-assisted personal interview approach was used for each of the sampling frames. Additional field work details and outcomes are discussed below.

[3] Before the study team initiated fieldwork, NYCT approved the survey questionnaire and Government & Community Relations (GCR) notified the pertinent Community Boards and elected officials that the intercept survey would be conducted and to explain the purpose of the study. To facilitate GCR's outreach, the study team prepared a one-page summary of the purpose and intended outcomes of the intercept survey.

[4] Between the Pilot phase and Round One, the study team modified the subject bus routes—based on site visits and analysis of origin/destination survey data—to exclude routes B35 and B8 and add routes B41 and B17 (i.e., the portions of the routes that serve the Utica Avenue corridor).

4.2 RESPONSE RATE

A summary of the surveys goals and response rates, segmented by sampling frame, are presented in Table 7. The table shows a total of 8,209 customers were engaged and of those, about 75 percent took the time to complete the survey. A series of detailed quality control procedures were conducted on this data, which resulted in a usable total of 5,318 responses, exceeding the goal of 5,000 surveys.[5] Appendix A includes the cleaned data.

As shown in Table 7, the study team nearly met or exceeded the goal for each of the five sampling frames, as follows:

- Bus: 2,262 usable surveys, exceeding the goal of 2,150 surveys;
- Subway: 2,013 usable surveys, exceeding the goal of 1,900 surveys;
- Commuter Van: 98 usable surveys, nearly meeting the goal of 100 surveys;
- Pedestrian: 590 usable surveys, nearly meeting the goal of 600 surveys; and
- Automobile: 355 usable surveys, exceeding the goal of 250 surveys.

Table 7. Response Rates by Sampling Frame

Frame	Sample Goal	Customers Engaged	Completed Surveys	Response Rate	Usable Surveys
Bus	2,150	3,329	2,464	74%	2,262
Subway	1,900	3,354	2,348	70%	2,013
Commuter Van	100	213	139	65%	98
Pedestrian	600	874	692	78%	590
Automobile	250	439	312	71%	355
Total	**5,000**	**8,209**	**5,945**	**75%**	**5,318**

Source: Utica Avenue Transit Improvements Study

Table 8 summarizes the non-response survey goals and the realized non-response rates for the delivered 5,318-record dataset. In addition to generally meeting the goals for number of collected surveys by sampling frame, the study team also met the data quality goals for most parameters (e.g., accuracy of geo-coded origin/destination location, etc.).

[5] Many of the responses that were complete, but not ultimately usable, may have skipped certain questions, such as income or race, or may have had an odd or illogical set of geo-coded locations. This is expected and the reason more than the target number of surveys were collected in the field. Additional quality control/quality assurance efforts that took place after the 7/18/19 Transportation Intercept Survey & Ridership Working Group meeting reduced the number of usable surveys from 5,379 to 5,318.

Table 8. Item Non-response Thresholds and Outcomes

Item	Response Goal	Response Outcome	Relevant Records
Accurately geo-coded origin location	98 percent	100 percent	5,318
Accurately geo-coded destination location	98 percent	100 percent	5,318
Accurately geo-coded home location	98 percent	98 percent	5,318
Accurately geo-coded work location	80 percent	93 percent	3,805
Access mode (for transit)	98 percent	100 percent	4,322
Egress mode (for transit)	98 percent	100 percent	4,322
Accurate time and date	98 percent	100 percent	5,318
Accurate intercept survey frame	98 percent	100 percent	5,318
Race/ethnicity	85 percent	99 percent	5,318
Income	70 percent	70 percent	5,318

Source: Utica Avenue Transit Improvements Study

During the survey, customers were asked if they did or expected to make the same trip in the reverse direction either earlier or later in the day. For example, if a customer was surveyed commuting to work at the Crown Heights-Utica Avenue subway station in the morning, the customer was asked whether or not they would return home using the same sequence of movements and, if so, at what time. Synthetic records were created from this information, which resulted in an additional 2,716 records in the database, bringing the complete database size to 8,034 records.

The following sections discuss each of the five sampling frames.

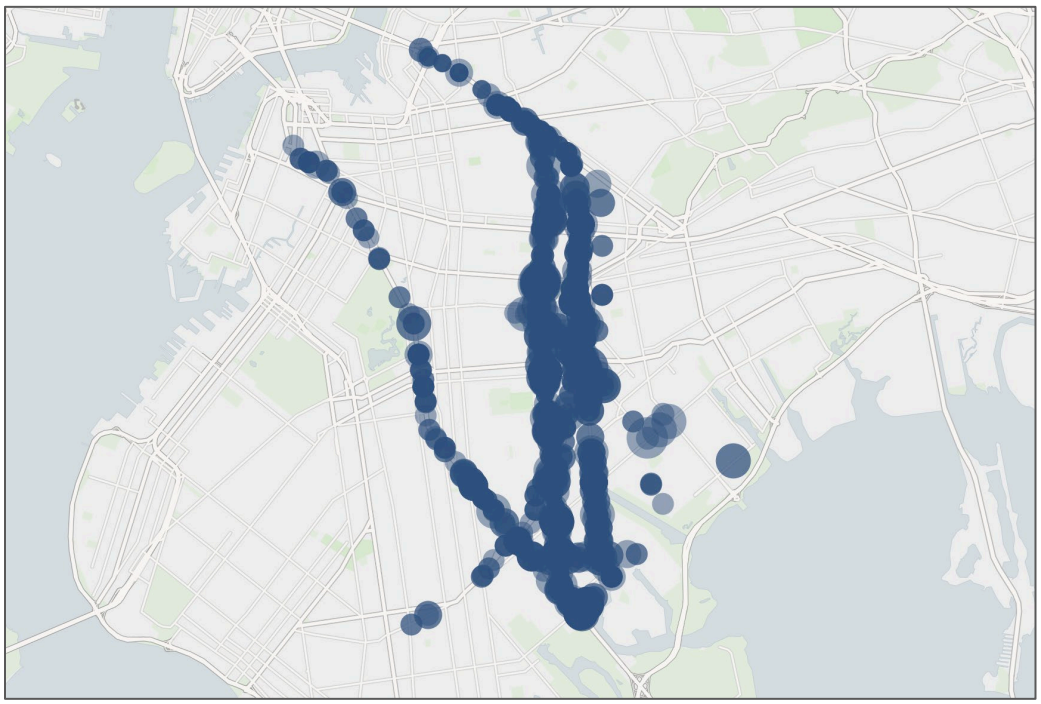
4.3 BUS SAMPLING FRAME

Travelers were approached on the following bus routes in and near the study corridor:

- B7 Midwood – Bedford-Stuyvesant;
- B17 Canarsie – Crown Heights;
- B41 Kings Plaza – Downtown Plaza;
- B46 Kings Plaza – Williamsburg;
- B46 SBS Kings Plaza – Williamsburg; and,
- B47 Kings Plaza – Bedford-Stuyvesant.

A map of the locations of the surveys is shown in Figure 8. The location is marked where the survey started and is referenced to the nearest bus stop. In certain cases, a surveyor may have started a survey towards the northern portion of the corridor, and by the time the survey was completed, the surveyor bus may have exited the corridor. When returning to the corridor, the surveyor continued to survey passengers, both at bus stops and on-board the bus en route back to the corridor, and thus some surveys were recorded outside the corridor. In general, passengers were approached after they boarded the bus, with specific passenger selection an outcome of a random draw. If willing to spend about five minutes of their time on a survey, the passenger was interviewed, and the outcomes of the survey were recorded in a tablet computer. For sensitive questions such as income and gender, the respondents were handed the tablet and allowed to select the answer themselves.

Figure 8. Field Locations of Bus Surveys



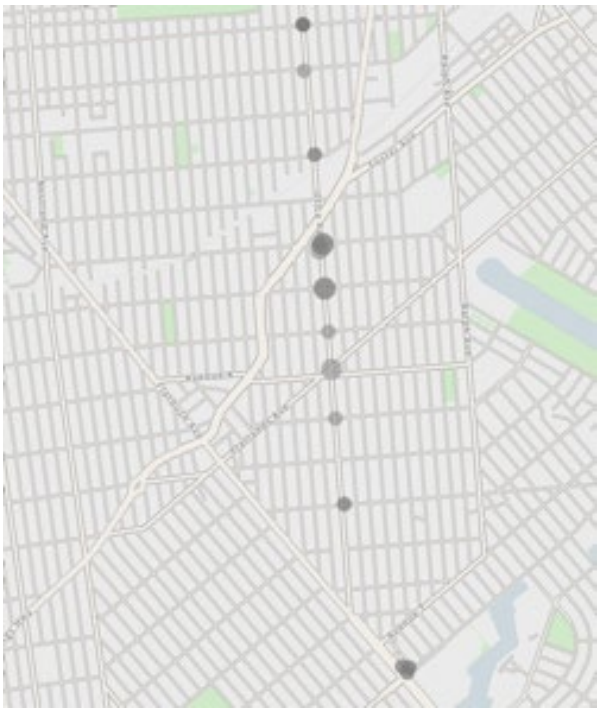
Source: Utica Avenue Transit Improvements Study

4.4 COMMUTER VAN SAMPLING FRAME

Travelers were generally surveyed on-board commuter vans. The study team approached commuter van drivers, most often at the intersection of Eastern Parkway and Utica Avenue, and asked for permission to board the vehicle and survey customers. Once on-board, the surveys were conducted in an identical manner to the bus surveys. The field locations of the surveys are presented in Figure 9.

Figure 9. Field Locations of Commuter Van Surveys

Northern Portion of Corridor



Southern Portion of Corridor

Source: Utica Avenue Transit Improvements Study

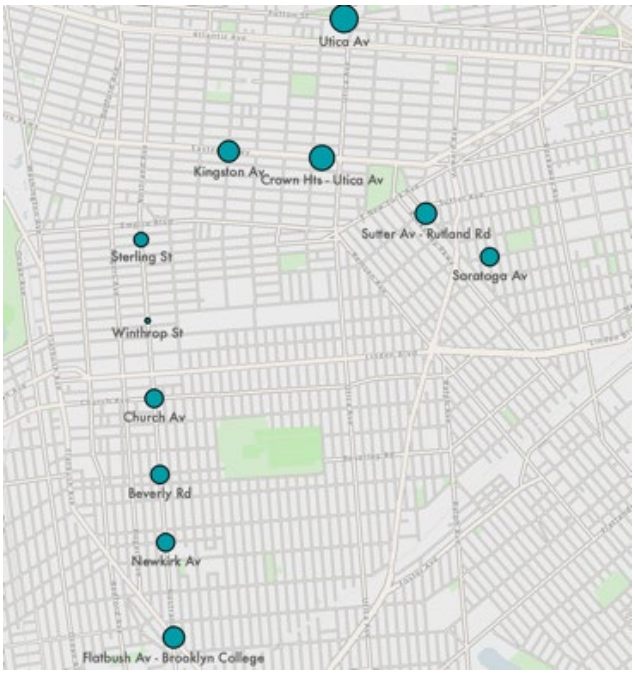
4.5 SUBWAY SAMPLING FRAME

Travelers were approached at the following subway stations:

- Crown Heights – Utica Avenue;
- Utica Ave;
- Flatbush Avenue;
- Newkirk Ave;
- Beverly Road;
- Church Avenue;
- Winthrop Street;
- Sterling Street;
- Kingston Avenue;
- Sutter Avenue-Rutland Road; and,
- Saratoga Avenue.

The field locations, sized relative to the number of usable surveys gathered, is shown in Figure 10. Customers at subway stations were surveyed at the platform, in the mezzanine area, as they waited for trains, alighted for trains, and entered/exited the station. When approaching a collection of passengers, such as a group waiting for a train, the specific respondent was randomly selected. If the participant agreed to be surveyed, the same procedure as in the bus frame was carried out: personal interview with responses recorded in a tablet computer. If a train arrived during the interview, the interview continued—with the passenger's consent—on board the train, with the interviewer joining the respondent on the train.

Figure 10. Field Locations of Subway Surveys



Source: Utica Avenue Transit Improvements Study

4.6 PEDESTRIAN SAMPLING FRAME

Pedestrians were surveyed along Utica Avenue within the corridor. The locations are shown below in Figure 11. As in the other frames, pedestrians were asked if they had about five minutes to do the survey and those that agreed were interviewed, with the responses recorded in a tablet computer.

Figure 11. Field Locations of Pedestrian Surveys

Northern Portion of Corridor Southern Portion of Corridor

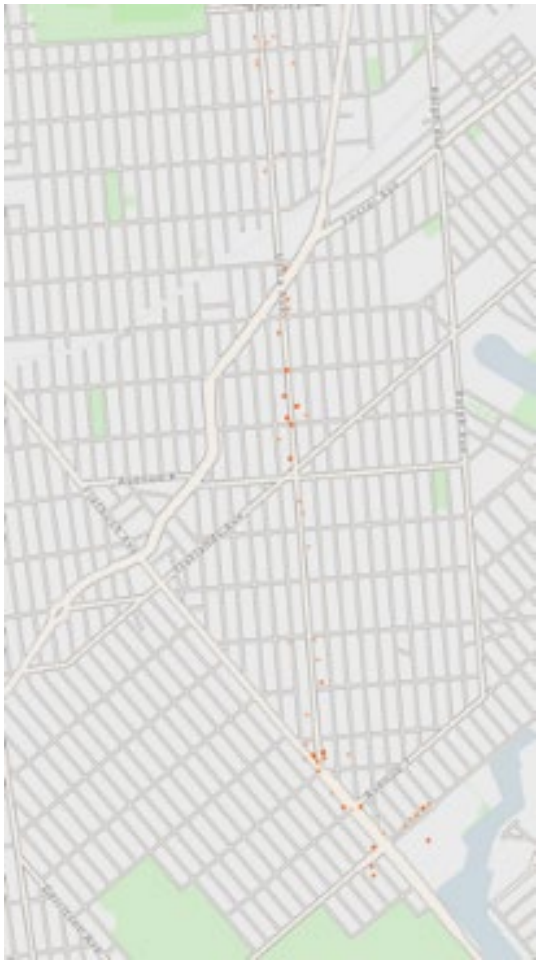
Source: Utica Avenue Transit Improvements Study
Note: The dots are small because the same scale is used for the much larger bus and subway surveys and the points are not aggregated to bus stops as in the commuter van survey.

4.7 AUTOMOBILE SAMPLING FRAME

Automobile customers were surveyed along Utica Avenue, mostly at parking locations from less dense retail stores and gas stations. The locations are shown in Figure 12. Once engaged, the survey was conducted in a manner identical to the pedestrian frame.

Figure 12. Field Locations of Automobile Surveys

Northern Portion of Corridor



Southern Portion of corridor

Source: Utica Avenue Transit Improvements Study

5 Summary of Survey Data

While the comparison of *a priori* hypotheses (discussed in Section 6) focuses on travel-related data, the complete dataset also reveals a host of non-travel related data, including—but not limited to—gender, race/ethnicity, age, household size, number of household automobiles, household income, home/work/school locations, and destination purpose. Below is a high-level summary of the survey data, based on tables, charts, and maps that are included in Appendix B1, which renders images extracted from a Tableau Workbook summarizing the outcomes. The Tableau Workbooks are included as Appendix B2.

- Over 78 percent of the surveys were collected on weekdays
- About 60 percent of the survey respondents were female
- Nearly 70 percent of respondents identified as "non-Hispanic/Black"
- The most common age category was 25 to 30 years old, at about 18 percent of the respondents
- The most common income category was $43,000 to $74,999 annually, in which 27 percent of the respondents reported
- The largest household size category was three persons, accounting for 27 percent of the respondents
- Over 43 percent of respondents came from two-worker households, the largest category
- More than 60 percent of the survey respondents reported having no vehicle in their household
- Over 65 percent of respondents in the Adult fare category reported using an Unlimited Ride MetroCard
- Over 27 percent of respondents reported traveling to work while taking the survey
- Respondents generally lived in the study corridor and worked in the expected employment locations of Manhattan and Downtown Brooklyn
- Identified school locations included many in Lower and Midtown Manhattan
- Customers of the B46, B46 SBS, and commuter vans reported similar incomes
- Commuter van customers generally had less comfort with English than customers of the B46 and B46 SBS
- Over 140 of the participants conducted the personal interview in a language other than English
- Households in which English is not spoken at all reported, on average, much lower incomes than households with more comfort with English

6 Hypotheses Development and Assessment

The study team developed quantitative hypotheses to guide the direction of the intercept survey targets as the survey was conducted. Prior to entering the field, the study team developed and estimated numeric hypotheses, described in Table 9, from several readily-available data sources and professional judgment. After the Round One field work, the study team expanded the intercept survey data through a weighting process (described in Appendix C), and subsequently compared the estimates to the hypotheses.

The hypotheses were developed to ensure that the data collected in the intercept survey effort was reasonable. For example, the comparison of *a priori* expectations for the number of daily transfers between the B46 and the Crown Heights-Utica Ave subway station to the expanded number of transfers estimated by Round One of the intercept survey, allowed the study team to pivot the collection effort in Round Two to confirm or refute potential discrepancies.

Table 9 identifies they hypotheses developed for the study, along with the data sources used to quantify the hypothesis.

Table 9. Summary of Hypotheses

#	Measure	Data Source(s)
1	Daily transfers to/from the B46/B46 SBS and Crown Heights-Utica Avenue Subway Station	Regional Transit Forecasting Model (RTFM), MetroCard data
2	Distance walked to access Crown Heights-Utica Avenue Subway Station	RTFM
3	Home location (by TAZ) for customers of Crown Heights-Utica Avenue Subway Station	RTFM
4	Home location (by TAZ) for customers of B46	RTFM
5	Home location (by TAZ) for customers of B46 SBS	RTFM
6	Work location (by district) for weekday customers of Crown Heights-Utica Avenue Subway Station	RTFM
7	Work location (by district) for weekend customers of Crown Heights-Utica Avenue Subway Station	Professional judgment
8	Work location (by district) for customers of B46	RTFM
9	Work location (by district) for weekday customers of B46 SBS	RTFM
10	Work location (by district) for weekend customers of B46 SBS	Professional judgment
11	Work location (by district) of corridor residents	Census, RTFM, NYCT O-D Data
12	School location (by district) of corridor residents	RTFM, NYCT O-D data
13	Origin location (by district) for customers of Crown Heights-Utica Avenue Subway Station	RTFM
14	Destination location (by district) for customers of Crown Heights-Utica Avenue Subway Station	RTFM
15	Origin location (by district) for customers of B46	RTFM
16	Destination location (by district) for customers of B46	RTFM
17	Origin location (by district) for customers of B46 SBS	RTFM
18	Destination location (by district) for customers of B46 SBS	RTFM
19	Mode share (walk versus bus) for customers traveling to the Crown Heights-Utica Avenue Subway Station by quarter mile increments	Professional judgment
20	Share of corridor residents that do not own a vehicle	Census (ACS)
21	Number of corridor residents using a subway station other than Crown Heights-Utica Avenue Subway Station	RTFM
22	Number of corridor residents using a bus line other than B46 or B46 SBS	RTFM

Source: Utica Avenue Transit Improvements Study

Note: Many of the hypotheses compare outcomes by "district," which is a collection of TAZs. As noted during the July 2019 Working Group meeting, one area where the districts appeared unclear was the boundary separating Downtown Brooklyn and Southwest Brooklyn. Atlantic Avenue and Schermerhorn Street generally serve as that district boundary.

As previously discussed, the intercept survey was conducted iteratively, and between the Round One and Round Two fieldwork, the hypotheses were compared to the outcomes. The project team looked for unexpected results in an effort to understand if something had gone amiss in the fieldwork and/or if the team's understanding of existing conditions from existing data sources was incorrect.

The comparisons between the hypotheses and Round One outcomes were discussed with the Transportation Intercept Survey & Ridership Working Group during a meeting in May 2019. In general, the outcomes of the Round One survey were as expected.[6] The comparisons were updated with the complete dataset (i.e., Round One and Round Two) and discussed with the Working Group in July 2019.

Below is a high-level summary of each hypothesis, based on the Tableau summaries included as Appendix D1. The Tableau Workbooks used to generate the summaries are included as Appendix D2. Certain hypotheses proved less meaningful than anticipated based on the available data and survey responses, but all hypotheses are included for reference.

- Hypothesis #1: Transfers from the B46/B46 SBS and Crown Heights-Utica Ave Subway Station.
  - Based on NYCT data from fare cards, each day about 5,500 customers make swipes on-board the B46 or at the B46 SBS kiosk and then shortly thereafter swipe into the Crown Heights-Utica Avenue subway station. This value was used as one of the expansion controls (discussed in Appendix C) and therefore the estimated values from the survey are very similar to the NYCT values. Estimates extracted from the Regional Travel Forecasting Model (RTFM) are also included and are similar.
- Hypothesis #2: Average distance walked to access Crown Heights-Utica Ave Subway Station.
  - This measure is compared to NYCT's origin-destination (O/D) survey, which has a relatively small number of samples for the customers of the Crown Heights-Utica Avenue station, as well as the RTFM. The outcomes from the intercept survey are in between these two data sources, estimating an average walk distance of about a quarter-mile to the station.
- Hypothesis #3: Home location of customers of Crown Heights-Utica Ave Subway Station.
  - For this hypothesis, the data from the intercept survey is compared to the O/D survey, whose small sample shows broad dispersion, and the RTFM, that shows a closer bundle. The points are geo-located to the RTFM's transportation analysis zones (TAZs). The pattern from the RTFM and intercept survey outcomes are similar and show a tight cluster around Eastern Parkway and Utica Avenue with a linear dispersion down Utica Avenue.
- Hypothesis #4: Home location by TAZ of customers of the B46.
  - As with Hypothesis #3, the data from the intercept survey is compared to the O/D survey and the RTFM, and the intercept survey data is consistent with the RTFM. For this hypothesis, the O/D survey's sample size is too small to provide robust information. The intercept survey shows a cluster of locations along Utica Avenue.

[6] The one finding that surprised the study team was the share of travelers using a bus to access the Crown Heights-Utica Avenue subway station rather than walking (i.e., Hypothesis #19). Specifically, far more customers appeared to take the bus short distances than expected, and this still appeared to be the case for the full survey results following Round Two, as discussed during the July 2019 Working Group meeting. After additional review, this finding turned out to be a computation error. The corrected data demonstrates agreement between the expectations and the outcome.

- Hypothesis #5: Home location of customers of the B46 SBS.
  - As with Hypotheses #3 and #4, the data from the intercept survey is compared to the O/D survey and the RTFM, and the outcomes are generally consistent with the RTFM, which show a more dispersed cluster along Utica Avenue than the B46 map.
- Hypothesis #6: Work location by district of weekday customers of the Crown Heights-Utica Ave Subway Station. [7]
  - Whereas Hypothesis #3 was based on home location, this hypothesis corresponds to the work location. For this hypothesis, the two data sets are generally aligned, with workers in Manhattan and Brooklyn represented, though parts of Upper and Lower Manhattan are more representative of the intercept survey respondents.
- Hypothesis #7: Work location by district of weekend customers of the Crown Heights-Utica Ave Subway Station.
  - Similar to Hypothesis #6, this is the work locations of those surveyed on the weekends. Though the O/D survey captured this data, it is very sparse. As such, the hypothesis is formulated from the study team's professional judgment and matches the outcome to an extent. Give the low quality of the data used to craft the hypothesis, it is difficult to draw conclusions about the performance of the intercept survey. The intercept survey shows workers in the corridor, nearby in Downtown and Southwest Brooklyn, and Manhattan.
- Hypothesis #8 - #9: Work location by district of weekday customers of the B46 (#8) and B46 SBS (#9).
  - As with Hypothesis #6, the intercept survey is compared to the RTFM, which provides more robust data than the O/D survey. The two datasets generally agree and show workers mostly in Brooklyn (in the corridor as well as to the west) and Manhattan. There are a few locations throughout Manhattan that are more representative of intercept survey respondents.
- Hypothesis #10: Work location by district of weekend customers of the B46 SBS.
  - As with hypothesis #7, robust data on weekend travelers is not available and, as such, the hypothesis is formed from the study team's professional judgment. The judgment aligns rather well with the intercept survey outcomes, which shows work locations predominantly in Brooklyn.
- Hypothesis #11: Work location by district of corridor residents.
  - This compares the work location to data from the Census Transportation Planning Package (CTPP) for 2012 to 2016 and the RTFM (which is based on an older version of the CTPP). The intercept survey data is very similar to the CTPP data, which shows work locations in the corridor, other parts of Brooklyn, and Manhattan, especially lower Manhattan. The RTFM dataset shows less representation in the Utica Avenue corridor.
- Hypothesis #12: School location by district of corridor residents.
  - School locations can be pre-schools, night schools, universities, or high schools. Both the intercept survey and the O/D survey have relatively small samples of these measures and show locations both

[7] In the graphic shown in Appendix D1, the size of the pie charts corresponds to the combined size of the hypothesis (from the RTFM) and intercept data, and the shares of the pie chart correspond to the relative size of the proportion from the two data sources. If, for example, the two pie pieces are equal in size, then the share of workers from the two data sources are the same (and, if the pie is large, these shares are relatively large). Intercepted customers did not need to be traveling to work for their work location to be recorded and mapped. Appendix B1 includes a map showing the work locations of commuters surveyed at Crown Heights-Utica Avenue subway station.

in the corridor and in Manhattan. Neither data source is particularly definitive given the small sample sizes. Some districts have representation from only the intercept survey or the O/D survey.

- Hypotheses #13 - #18: Origin and Destination locations by district for customers of Crown Heights-Utica Ave Subway Station, B46, and B46-SBS.
  - These summaries compare the origin-destination patterns of the Crown Heights-Utica Ave subway station and the B46 and B46 SBS routes across the intercept survey and RTFM. Generally, the datasets align well and show travel mostly occurring in Brooklyn and, to a lesser extent, Manhattan.
- Hypothesis #19: Mode share (walk versus bus) of customers accessing the Crown Heights-Utica Ave Subway Station.
  - The intercept survey data closely matches the hypothesis based on the study team's professional judgment, showing bus begin to overtake walk as the dominant mode of access around a half-mile from the station.[8]
- Hypothesis #20: Share of corridor residents that do not own a vehicle.
  - These comparisons are made to both American Community Survey data from 2017 and the O/D survey, though the latter may have been expanded to match the former. The intercept survey provides a slightly lower estimate of around 60 percent of households not owning a vehicle compared to nearly 70 percent of households estimated by the other data sources.
- Hypothesis #21: Number of corridor residents using a subway station other than Crown Heights-Utica Ave subway station.
  - As discussed in Appendix C, the survey was not expanded to match usage at other subway stations and, as such, this comparison cannot be properly made.
- Hypothesis #22: Number of corridor residents using a bus route other than the B46 or B46 SBS.
  - This estimate is compared to the O/D survey as well as the study team's professional judgment. The judgment estimate was derived after examining the O/D survey outcome, which seemed very large, although this is not surprising given the small sample size. The intercept survey estimate of about 10,000 is closer to the judgment estimate than the O/D survey outcome, but the hypothesis is in any case not informed by robust data.

[8] Refer to the previous footnote for an explanation regarding a prior computational error.

7 Conclusion & Next Steps

The intercept survey completed as part of the Utica Avenue Study provided detailed information about travel patterns to, from, along, and near the study corridor. More than 5,000 usable surveys were collected across five sampling frames, corresponding to a range of travel modes. The phased approach to the intercept survey enabled the study team to evaluate interim datasets, adjust fieldwork procedures as necessary, and solicit input from the interagency Working Group throughout the process.

The survey outcomes will serve a key role in the project moving forward by enhancing the study team's understanding of relevant travel markets and providing robust data to calibrate the travel demand model. Next steps in the study will directly build upon this work, as the intercept survey data will inform the study team's validation of the ridership forecasting tool, which will use both the MTA RTFM and New York Metropolitan Transportation Council (NYMTC) Best Practice Model (BPM).